

BICYCLES TRANSPORT SUSTAINABILITY OPPORTUNITIES FOR TOURISM DEVELOPMENT: CASE STUDY OF MZUZU CITY, MALAWI

James Malitoni Chilembwe

Faculty of Tourism and Hospitality Management, Mzuzu University, Mzuzu, Malawi. chilembwe.j@mzuni.ac.mw

Article History: Received 20th December 2016, Revised 02nd March 2017, Published 20th March 2017

ABSTRACT

Purpose

The objective of the study is to investigate and critically analyse the sustainability of bicycle taxi transport as informal business operation, the operators prevailing challenges and its contribution to sustainable urban transport and tourism development in Mzuzu city, Malawi.

Design / Methodology/Approach

The study was conducted with 10 bicycle taxi operators, road users, and 2 city council and 2 government authorities in Mzuzu city, Malawi. The sampling technique for bicycle taxi operators was random to collect primary data whereas authorities from city council and government used representative sampling technique to collect both primary and secondary data type (rules documents and regulations as well as by-laws). The research used both questionnaire and in-depth interviews. In this case, mixed method approach suited very well with a small sample in small tourist city.

Findings

The empirical results reveal that bicycle taxi operators are called periodically by road traffic officials and provide them with an awareness on how to operate on the roads within the city. It also reveals that there is no law that restrict operators from riding a bicycle in the city. Furthermore, reveals that bicycle taxi operators do not cause accidents but rather accidents are caused by several factors, among them: pedestrians, drunkards, not following rules and regulation by road users. Therefore, bicycle taxi users vowed to continue using bicycles because there are cheap and can take them anywhere motorised cars cannot reach. Despite a few challenges operators are facing, bicycles transport will be sustained, hence contributing to domestic tourism development.

Practical / Social Implications

The study reveals that bicycle transport should be properly formalised and integrated in urban transport in Mzuzu City which would lead to creation of an environmentally friendly city; continued provision of affordable public and tourists transport; and improving revenue base for the city council, as they will be able to collect revenue from the operators.

The results of this study cannot be generalized since the researcher focused on one city with a very small population with a small sample size.

Novelty / Originality

There are very few studies or none existing at all conducted in tourism to study bicycle transport sustainability opportunities for tourism development in Malawi and this may be first of its kind.

Keywords: bicycle taxi, urban transport, Mzuzu, ecofriendly, tourism development

INTRODUCTION

Developing cities, Mzuzu City in Malawi inclusive have several common factors that contribute to their transport problems. Pucher et al. (2005) cite overall population and increasing urbanisation as some of the factors which have led to the rapid growth of cities which resulted in many people travelling activities. Although travel demand increases in developing cities, many of the inhabitants are poor hence cannot manage travelling by motorised transport, which forces them to travel by bicycles long distances and hours a day.

Mzuzu City with growth rate of 4.2% per annum is the third largest city in Malawi and one of the fastest growing and urbanising cities in the country (<u>UN-Habitat, 2011</u>). In the past years, the city has experienced some tremendous



increase in the number of investments and economic activities. Among the investments are tourists' lodges and attractions within the city and neighbouring places such as Nkhatabay, and Rumphi (Vwaza and Nyika Wildlife Reserves). The city's economy is growing at a rate of 5.8% per annum and had an estimated Gross Domestic Product (GDP) of more than 6 billion Malawi kwacha for 2009 which only represents the formal economy (Mzuzu City Council, 2011). The city is the hub of government administration, business, industry, commerce, and services for the northern region of Malawi. This has led to a rapid increase of the city's population because many people flock in from the surrounding districts and rural areas searching for employment opportunities, business potential and a better living. This kind of movement has put pressure on a number of resources in general and transport demands is one of the important factors. City residents including tourists need to travel within the city and outside for either business or leisure activities. However, due to the rising costs and unreliability in terms of efficiency of motorised transport, some residents and tourists have resorted to using bicycle taxi transport which is popularly known as Sacramento (Jimu, 2008). This is regarded as fast and efficient because of its ease of accessibility, and price. According to Kaduluka (2011: 1) observes that 'the bicycle taxi operators have been plying their trade for several years now, yet there is little recognition of the role they play in the economy of which they are a part, neither research outputs nor policy initiatives towards encouraging or promoting the creative enterprise'.

The main problem with bicycle taxi operation in Mzuzu City is that the business of urban transport is considered as informal although it has boomed due to rising demand. There are several factors contributing to this; lack of employment in the city, rising informality, rising cost of living, lack of proper and adequate road infrastructure for motorised users, which forces both residents and tourists to opt for bicycle transport means, hence this increased demand. Some people have joined bicycle taxi operations as a means of earning a living.

However, urban bicycle transport operations in Mzuzu City remains informal. The city of bicycles as others put it (<u>Malawi News, 2011</u>), has been heavily condemned by local authorities, some motorised road users, pedestrians as posing a safety risk to the operators themselves, passengers and other road users because a number of taxi bicycle operators lack knowledge of traffic and safety rules, regulations. Furthermore, it is argued that taxi bicycle operators are most of the time negligent on the road.

Due to the calls for actions from city authorities and the police, have resorted to prohibit accessing the city centre by bicycle operators. Whosoever bicycle taxi operator disobeys this order, regrets a bicycle being confiscated by city and police in joint operation activity as Daily Times (2010) reports. Sometimes, a taxi operator may escape but during such operations, a number of accidents have occurred with innocent pedestrians or other motorised road users. Moreover, on positive note, such business operations have been commended by other quarters as sustainable (Kaduluka, 2011), hence the need to be conducted in a proper manner through regulations and guidance of the operations. On the other hand, Manda (2014) sees misunderstanding between the authorities and taxi operators. This is the kind of business in which all parties need to understand each other in order to bring in meaningful domestic tourism development.

RESEARCH OBJECTIVES

The main objective of the study was to investigate whether bicycle taxi transport as informal business operation can be sustainable and contributes to sustainable urban transport and tourism development in Mzuzu City.

RESEARCH QUESTIONS

In order to address the above objectives, the study focuses on the following main research question: how can bicycle taxi as informal business operation contributes to sustainable urban public transport and tourism development in Mzuzu City? For the main question to be fully responded to, the following research sub-questions need to be addressed:

- How does bicycle taxi operation be defined in Mzuzu City? Can it support sustainable tourism development and in what transportation systems do bicycle operators involved in Mzuzu City?
- Are the bicycle taxis operations contributing to sustainable urban transport in Mzuzu City? To what extent? And what are the major opportunities and problems?
- What are stakeholders' perceptions regarding the sustainability and tourism development of bicycle transport in Mzuzu City?
- What are the policy and support mechanisms required to facilitate bicycle taxi operations for sustainable and tourism development in Mzuzu City?



RATIONALE OF THE STUDY

Due to ongoing conflict, which arises between urban authorities such as city officials and police who try to keep the city clean and safe, by removing bicycle taxi operators from streets of the City. They are considered an eyesore due to the unnecessary congestion they cause in the city streets. Bicycle operators, on the other land, need space and income from their activities and hence keep on coming back to do their business within the city streets. However, the integration of such informal sector activities may form a basis for the provision of pro-poor urban service delivery, in this case urban para-transit transport provision.

In the wake of climate change, it is also of paramount importance mobility measures that mitigate against climate change, and reduce carbon dioxide emissions from the motorised means of transport, particularly in growing cities like Mzuzu.

Bicycle taxi operators in Malawi like any other business person have the right to perform their economic activities without being pushed around in order to contribute to sustainable urban transport and tourism development in Malawi. However, they need to be regulated.

The study findings will specifically help to raise awareness on pertinent issues concerning bicycle taxi operations in sustainable transport and tourism development. This will help the city to understand and formulate initiatives and policies for bicycle taxis. The study will also assist the bicycle taxi operators by providing them with necessary information as to how they should ply their operations in order to be accepted not only by city authorities but by all stakeholders including tourists.

LITERATURE REVIEW

Sustainable Transport

The concept of sustainable transport was introduced in order to solve problems related to traffic disturbance, transport efficiency, environmental protection, safety issues, and social welfare of human societies (Black, 2010; Yifan Xu, 2010). The term 'sustainable transport' owes it origin from sustainable development a term coined by the Brundtland Commission, which defined it as development which meets the needs of the present without compromising the ability of future generation to meet their needs. To be more specifically, sustainable transport is used to describe the modes and systems of transport, which are considered as sustainable from social, economic, and developmental perspective (Council of EU, 2001). According to Handbook on Cycling-Inclusive Policy Development (2009), a sustainable transport is one that:

- Allows the basic access needs of individuals and societies in terms of mobility to be met safety and in manner consistent with human ecosystem, health and with equity within and between generation;
- Is affordable, operates efficiently, offers choice of transport mode and support a vibrant economy;
- Limits emissions and waste within the planets ability to absorb them, minimises consumption of non-renewable resources, limits consumption of renewable resources to be sustainable yield level, reuses and recycles its components, and minimises the use of land and the population of noise.

It is therefore considered that a sustainable and developed transport system is postulated to be: 'a transport system that meets the people's transport related needs in terms of mobility, accessibility and safety, within limits of available or affordable environmental, financial and social resource capacities' (Zuidgeest, 2005). In this case, several countries have particularly paid attention to the use of non-motorised transport, especially cycling, to contribute in the realisation of sustainable public transport.

The overall objective of sustainable transport is "to ensure that our transport system meet the society's economic, social and environmental needs whilst minimising their undesirable impacts on the economy, environment (Council of European Union, 2006). Due to its impact on the economy, environment, and society, transport is regarded as important factor in sustainability. According to the Sustainable Transportation Indicators Subcommittee of the Transport Research Board ADD40 [1] (2008), chaired by Todd Litman, sustainable transport indicators are classified and summarised in the table below:



Table 1: Sustainable Transport Indicators (Litman and Burwell, 2006)

Economic	Social	Environmental
 Accessibility quality 	Equity or fairness	 Air pollution
 Traffic congestion 	Impacts on mobility	 Climate change
 Infrastructure costs 	disadvantaged	 Noise pollution
Consumer costs	 Affordability 	 Water pollution
 Mobility barriers 	 Human health impacts 	 Hydrological impact
 Accident damages 	 Community cohesion 	 Habitat and ecological
■ DNRR*	 Community livability 	degradation
	Aesthetics	DNRR*

Source: Sustainable Transportation Indicators Subcommittee of the Transport Research Board (2008: 6)

Depletion of Non-Renewable Resources

A more sustainable transport system should stimulate the economy, reduce energy and carbon footprint, increase safety, provide equal access to destinations for all groups of society, and increase the overall quality of life (<u>Buehler</u>, <u>Pucher and Kunerrt</u>, 2009).

Sustainable transport as defined by different authors is being viewed as the transport that should meet people's welfare economically, that is to say people of various economic status have to afford to pay for transport modes, even provision and operation of the transport has to be economically viable. Sustainable transport has to be easily accessible even by the poor communities; it also has to provide easy accessibility to various places like markets, schools and places of tourist interests. Socially, sustainable transport should not discriminate regardless of one's social status, which means, it has to bring together people of different social backgrounds, hence improving the social cohesion and livability of societies. On the other hand, sustainable transport has to meet and improve the mobility needs of all people in society.

Moreover, various definitions reveal that, sustainable transport should not cause any harm or damage to peoples living environment, either in form of pollution of the air, water, causing a lot of noise and disturbing the natural habitat of other living creatures. It also comes clear in various definitions that sustainable transport is one that should be of benefit not only to the current generations but it has to be considerate by having positive externalities even to the future generations.

Bicycles Transport in Africa

Bicycle taxi operations in Africa may be traced back in 1930s beginning in Senegal and later in 1960s emerged in Kenya and Uganda following border closures and economic crises according to <u>Diaz Olvera et al. (2010)</u>. Due to the increases in economic crisis especially in the 1990s and lack of employment, some people took an advantages of economic liberalisation to engage themselves in informal bicycle transport enterprises. Although, in some countries in Africa, for example; Uganda, operators upgraded themselves to the use of motorcycles as <u>Kisaalita and Sentingo-Kibalama</u> (2007) claim, other countries in Africa were still using non-motorised transport.

Bicycles Transport in Malawi

Due to the coming in of democracy and liberalisation in trade in 1994, Malawi experienced the introduction of several enterprises which included bicycle taxis, wheelbarrows, handcarts (Manda & Mzumara, 2005; Kayuni & Tambulasi, 2007). It is a fact that bicycle taxi operations is a reality in all cities and town in Malawi, however, more impacts are seen in Mzuzu City (Manda, 2014). Bicycle operators are favourably completing with roving motor vehicles taxis as short- distance transport services. There are large number of entrants into the business testifying the significance of this transport service in the city despite being informal type of trade. Apart from Mzuzu City, taxi operators are also seen countrywide towns: Mangochi, Machinga, Balaka and Liwonde in the southern Malawi; Kasungu, Salima, Lilongwe and Dwangwa in the central, and Mzimba and Karonga in the northern Malawi.

METHODOLOGY

This is both exploratory and descriptive research seeking to explore the bicycle transport as an informal business operation contributes to sustainable urban transport and tourism development in Mzuzu City. It also seeks to



describe ways, means and strategies that should be adopted to have bicycle taxi operations sustained and support in the tourism development. Therefore, a research survey was conducted, as a strategy for data collection, in addition to some literature and case reviews.

The study population comprised of bicycle taxi operators, users, other road users, city authorities, regional road safety council, and road traffic directorate. The sampling technique was random, in case of operators, users, other road users. This was done to avoid bias in selecting respondents as regards to age, gender, and income level. Six sites in the study were selected. These included Mapale Taxi Rank, Chinese Taxi Rank, Mzuzu University Taxi Rank, Chibavi Taxi Rank, Kawiluwilu Taxi Rank and Botanic Gardens sites. Purposive sampling was used in case of authorities and other stakeholders.

Data collection included the use of semi-structured open and closed ended interviews. Bicycle taxi operators, taxi users and other road users considered a sample size of 10 respondents respectively using random sampling techniques to collect primary data. The research used both questionnaire and in-depth interviews whereas authorities from city council and government had a sample size of 4, with purposive or representative sampling technique to collect both primary and secondary data type (rules documents and regulations as well as by-laws). In this case, questionnaire and in-depth interviews were sought.

RESULTS AND DISCUSSIONS

Table 2: Bicycle Taxi Operator's characteristics

		Frequency	Valid Percent	Cumulative Percent
Age	15 – 20 years 21 – 25 years 26 – 35 years over 35 years Total	1 3 5 1 10	10.0 30.0 50.0 10.0 100.0	10.0 40.0 90.0 100.0
Level of Education	Primary level JCE level MSCE level Total	6 3 1 10	60.0 30.0 10.0 100.0	60.0 90.0 10.0
Income per week (in Malawi Kwacha)	K2,000 – K5,000 K5,001 – K10,000 Total	7 3 10	70.0 30.0 100.0	70.0 100.0
Years in Business	Less than 2 years 2 – 5 years More than 5 years Total	3 5 2 10	30.0 50.0 20.0 100.0	30.0 80.0 100.0
Bicycle ownership	Rent Own Employed Total	1 6 3 10	10.0 60.0 30.0 100.0	10.0 70.0 100.0
Marital status	Married Single Total	8 2 10	80.0 20.0 100.0	80.0 100.0

Source: Researcher (July, 2016)

Bicycle taxis operator's characteristics

The study interviewed a total of 10 bicycle taxis operators. The respondents had varying characteristics in weekly income, age, ownership of bicycles they use for daily operations and duration in business as operators. This type of business in Mzuzu City is male dominated (100%) because the operations require a lot of human energy, hence labour intensive, so a researcher did not interview any female.



Table no 2 above reveals that in terms of age, the most of the bicycle taxi operators (50%) are between 26 - 35 years, 30% of the operators fall within the 21 - 25 years, whereas 15 - 20 years and over 35 years old represents 10% each of bicycle taxi operators. Amongst the respondents interviewed, the youngest and oldest were 18 and 37 years old respectively. In terms of level of education of bicycle operators, 6 (60%) of respondents attempted primary education and did not proceed to secondary level. 3 (30%) reached the junior level of secondary education while respondent representing 1 (10%) reached higher level of secondary education.

The majority of 5 (50%) have been doing this type of business for a period of 2-5 years while the rest 3 (30%) and 2 (20%) have been operating for a period of less than 2 years and more than 5 years respectively. It was also discovered that these taxi bicycle operators are again engaged in other income generating activities. These ranges from running small-scale retail shops, working as security guards, working as builders while others stated that they work as garden boys on part time basis. On other hand, the study found out that some do not have extra jobs, so depend solely on bicycle taxi operations.

In terms of bicycle ownership, the study reveals three types categories. Either a bicycle operator owns it, rent or employed. 60% of the respondent operators own the bicycle they use as taxi. They have either been given the bicycle by relatives or purchased the bicycle from savings of previous employment or business. 30% of respondents rent the bicycles by making an agreement with the bicycle owner to pay a daily, weekly or monthly fee for using the bicycle. 10% of bicycle taxi operators indicated that they are employed as such, they the bicycle owners who pay them a monthly salary or weekly wage.

Income levels of the majority of bicycle taxi operators (70%) earn in the range of 2,000 – 5,000 Malawi Kwacha (an equivalent of 2.7 – 6.7 United States Dollars per week) whereas the remaining (30%) of bicycle operators earn between 5,001 – 10,000 Malawi Kwacha (an equivalent of 6.7 – 13.3 United States Dollars per week). This means that 70% of the operators earn a maximum income of 24,000 kwacha a month, while 30% earn a maximum of 40,000 kwacha per month. There a number of factors which make earnings differ from one operator to another. Some of them are; number of clients one is able serves, distance coverage, centre or location of operation and number of bicycle taxi users versus number of taxi operators. The survey also sought to find out the operator's marital status. The results reveal that 8 (80%) representing respondents are married and live with their families of an average of 5 members who are supported from income of bicycle taxi operations, while 2 respondents, (20%) are not married.

Sustainable Tourism Development and Transportation Systems in Mzuzu City

The study reveals that the provision of public transport in Mzuzu City is privately and informally organised mainly through paratransit operations, as there is no public transport provision by government or city council. 100% of respondents said that the absence of government public transport has led to introduction of informal bicycle taxis to offer transport services to both residents and tourists to places of tourist interests in the city. It further reveals that through operation, bicycle taxi operators have a number of advantages which will make them continue their operations despite facing some challenges like restriction to operate in city centre. It is clear that bicycle taxi transport in Mzuzu City contribute to sustainable tourism development since it does not use fuel to destroy environment as other motorised urban transport do so.

In order to understand why taxi bicycle operators are restricted to operate in Mzuzu City when they are contributing to urban transport and sustainable tourism development yet there no government public transport. The City Council officials and Regional Road Safety official said that they are barred from the city due to inadequate infrastructure to accommodation them since the current scale of infrastructure is congested by vehicles and pedestrians. They further concurred with some of the reasons provided by the taxi bicycle operators that they are barred due to non-observance of traffic regulations like jumping traffic lights and entering into no entry zones due to ignorance or deliberate non-compliance. As a result, it exposes them to high risk of accidents. However, the city council authority and national road safety council have different views in terms of whether restriction of taxi bicycle operators in the city is the best option. The city council believes it is a best option since it would reduce congestion and accidents while the national road safety council says it is not the best option as it is segregation in nature since the operators are not to blame for the absence of bicycle facilities. Critically analysis of all respondents' statements, one can easily notice that all (100%) agree that taxi bicycle operators should be accommodated and recognised in the city transport system as they contribute to urban transport and sustainable tourism development.



Bicycle Taxi Operators contribution to Sustainable Urban Transport in Mzuzu City

Table 3: Shows some of the major opportunities and problems of bicycle taxi operators

Opportunities / advantages	Problems / challenges
 Source of livelihood. They get income which assist them and their families with basic necessities Assist in reducing unemployment in the city, which also leads to subsequent reduction of incidences of theft as most young men are involved in bicycle taxi business. 	 Denied access to operate in city streets especially city centre Stiff competition due to unlimited and uncontrolled entry in business High bicycle maintenance costs Taxi users negotiate for lower fares due to market responsiveness Thieves pretend to be clients when having intention to steal a bicycle especially during night transport Lack of bicycle infrastructure hence road sharing with other users forced to cycle on the road edge Conflict due to lack of respecting each other between motorised taxis and bicycle taxis

Source: Researcher data (May, 2016)

In order to assess the sustainability of bicycle taxi operations in Mzuzu City, the bicycle users (stakeholders) were asked to provide their opinion regarding the sustainability and how bicycle taxi services contribute to urban transport and add value to tourism development in the city in terms of; accessibility, reliability, affordability, comfortability and safety.

Table 4: Showing stakeholders perception on sustainability of bicycle taxi transport and tourism development

Bicycle taxi transport	Y	es	N	lo	Total	
sustainability for tourism development component	Frequency	Percent	Frequency	Percent	N	%
Accessibility	8	80.0	2	20.0	10	100
Comfortability	4	40.0	6	60.0	10	100
Affordability	9	90.0	1	10.0	10	100
Safety	3	30.0	7	70.0	10	100
Reliability	4	40.0	6	60.0	10	100

Source: Researcher data (August, 2016)

The study reveals (table no 4) that bicycle taxi services are very accessible to most users, 8 (80%) of the respondent users said they can easily access the bicycle taxi services. The reason cited was that they do not need to travel long distance from home, business place or leisure point in the city to find bicycle taxi operator. On contrary, 2 user respondents (20%) indicated that the bicycle taxis are not easily accessible. However, the reason provided was that bicycle taxi operators target areas that are flat rather hilly places because it requires human power to operate bicycle.

Sustainable Tourism Development Policy and Support Mechanisms to facilitate Bicycle Taxi Operations

In trying to avoid bias, the researcher interviewed officials from government: two officials from city council to get their opinion on what they think are the requirements to have bicycle taxi operations formally accepted and integrated as a means of urban transport to contribute to sustainable tourism development. Table no 5 below summarises the responses from the bicycle operators, government official and users.

The <u>table no 5</u> below provides mixed views to have bicycle transport properly formalised and integrated in urban transport in Mzuzu City and the researcher sees this as implications to have bicycle transport being accepted by all quarters. Although there are some positives to be drawn from the city authorities and other government departments regarding the general acceptance of bicycle transport operation in the city which would lead to creation of an environmentally friendly city; continued provision of affordable public and tourists transport; and improving revenue base for the city council, as they will be able to collect revenue from the operators. The study however does not only reveals positives but also negatives from city authorities and government officials. There are fears that formalisation may lead to worsening of the cold war currently existing between the bicycle taxi operators, the



policemen and motorised taxi operators, since they will continue scrambling for customers and police will perceive them causing accidents in the city while the road traffic police will continue perceive them innocent and having rights to user roads in the city. They argue that periodically bicycle taxi operators are invited for a talk and they do not cause accidents because accidents are caused due to many factors.

Table 5: Showing views for the requirements to have bicycle operations accepted and integrated to urban transport to contribute to sustainable tourism development in Mzuzu City

Bicycle Taxi Operators	Government	Bicycle Users
 To form active association with legally binding constitution to guide operations Bicycle operators to subscribe to the association for easy identification To get trained in highway code by traffic police or National Road Safety Council To make sure that all bicycles are roadworthy To adhere to some available legislation and regulations for operators and passengers safety. 	 To ensure the availability of the Highway Code booklets and easy access To introduce facilities for cyclists on the road (i.e., bicycle tracks, bicycle ranks and signage to guide taxi operators To provide more funds to National Road Safety Council of Malawi and Traffic Police department to offer training to bicycle taxi operators 	 Passengers must have responsibility to check the level of road safety knowledge in the operator as well as fitness and roadworthiness of the bicycle Passengers must assess the volume of traffic and decide how safe it is for them to hire a bicycle taxi Passengers must lobby to government to support their service providers (bicycle taxi operators) by improving road infrastructure

Source: Researcher data (October, 2016)

CONCLUSION

The study has revealed varying characteristics in weekly income, age, bicycle ownership and operators duration in business. The bicycle taxi operations in Mzuzu City is male dominated due to its labour intensive. It further reveals that the majority of bicycle operators attempted primary education and did not proceed to secondary level. It was also discovered that these taxi bicycle operators are also engaged in other income generating activities like running small-scale retail shops, working as security guards, working as builders while others stated that they work as garden boys on part time basis. Some do not have extra jobs, so depend solely on bicycle taxi operations, are married and live with their families of an average five members.

Furthermore, the study reveals that the provision of public transport in Mzuzu City is privately and informally organised mainly through paratransit operations, as there is no public transport provision by government or city council. The absence of government public transport has led to introduction of informal bicycle taxis to offer transport services to both residents and tourists to places of tourist interests in the city. It further reveals that through operation, bicycle taxi operators have a number of advantages which will make them continue their operations despite facing some challenges like restriction to operate in city centre. It is clear that bicycle taxi transport in Mzuzu City contribute to sustainable tourism development since it does not use fuel to destroy environment as other motorised urban transport do.

ACKNOWLEDGEMENT: Author extends gratitude to GIAP's Center for Research & Innovation, <u>GCRI</u>, India for awarding publication grant no **gcri/2017/ijthr/411** to this article.

REFERENCES

- 1. Black, W.R. (2010) Sustainable Transportation: Problems and Solution, New York and London: Guilford Press.
- 2. Buehler, R., Pucher, J., and Kunerrt, U. (2009) Making Transportation Sustainable: Insights from Germany, USA: Brooking Institution.
- 3. Council of EU (2001) Ministers Responsible for Transport and Communication the 2340th Meeting of the European Union's council of Ministers., Luxembourg.



- 4. Council of European Union (2006) Renewed EU Sustainable Development Strategy, Brussels: Council of EU.
- 5. Daily Times (2010, May 21) Mzuzu Police Impound 175 Bikes. Malawi: Blantyre Print Publications
- 6. Diaz Olvera, L., Plat, D., Pochet, P., and Sahabana, M. (2010) 'Motorised Two-wheelers in Sub-Sahara African Cities: Public and private Use', Paper presented at the 12th WCTR, 11 15 July, Lisbon, Portugal.
- 7. Jimu, I.M. (2008) Urban Appropriation and Transformation: Bicycle Taxi and Hand Carts in Mzuzu City, Malawi. Menkon, Bamenda Cameroon: Langaa Research & Publishing CIG.
- 8. Kaduluka, M. C. (2011) Formalising Bicycle Taxi Operations as a Sustainable means of public Transport in Mzuzu City, Malawi: Views from operators, users, and local authority. MSc Thesis in Urban Management and Development, Rotterdam- Netherlands: IHS.
- 9. Kayuni, H. and Tambulasi, R. (2007) 'Can the State perpetuate the Marginalisation of the Poor? An Analysis of the Social Economic Effects of the State's Ban of Minibus "Callboys" in Malawi', Paper presented at the International Conference on Vulnerability: Social Exclusion and the State in the Informal Economy, 26 28 March, Cape Town, South Africa.
- 10. Kisaalita, W.T. and Sentingo-Kibalama, J. (2007) 'Delivery of Urban Transport in Developing Countries: The Case of Motorcycle Taxi Services (Boda Boda) Operators of Kampala', Development Southern Africa, Vol. 24, (2), pp. 345 357. https://doi.org/10.1080/03768350701327319.
- 11. Litman, T., and Burwell, D. (2006) 'Issues in Sustainable Transportation,' *International Journal of Global Environmental Issues*, Vol. 6, No. 4, pp. 331-347; https://doi.org/10.1504/IJGENVI.2006.010889
- 12. Malawi News (2011: 26 Nov- 2 Dec) Mzuzu: The City of Bicycles. Malawi: Blantyre Print Publications.
- 13. Manda, M. (2014) Bicycle Taxis in Mzuzu City, Malawi: A Business Venture Misunderstood. In: Duminy, J., Andreasen, J., Lerise, F., Nancy Odendaal, N. and Watson, V. eds. Planning and the Case Study Method in Africa, pp. 102 128. https://doi.org/10.1057/9781137307958_0013
- 14. Manda, M.A.Z. and Mzumara, H. (2005) 'Managing Street Vending: The Case of Mzuzu City' in C. Kruse and M.A.Z. Manda (eds) Lessons in Urban Management: Experiences in Malawi 2000 2005 (Mzuzu: MGPDD/ALMA Consult).
- 15. Mzuzu City Council (2011) Mzuzu City Development Plan: Vol. 1 City Profile, Mzuzu: Mzuzu City Council.
- 16. Pucher, J., Korattyswaropam, N., Mittal, N and Ittyerah, N. (2005) 'Urban Transport Crisis in India', Transport Policy, Vol. 12, No. 3, pp. 185 198. https://doi.org/10.1016/j.tranpol.2005.02.008.
- 17. Sustainable Transportation Indicators Subcommittee of the Transport Research Board (2008, Nov 10) Sustainable Transportation Indicators: A Recommended Research Program for Developing Sustainable Transportation Indicators and Data. Available online at: http://www.vtpi.org/sustain/sti.pdf
- 18. UN-habitat (2011) Malawi: Mzuzu Urban Profile. Retrieve online from: http://www.zaragoza.es/contenidos/medioambiente/onu/issue06/1138-eng.pdf [accessed on 02/06/2016].
- 19. Yifan Xu, (2010) The public bicycle System in Hangzhou, China: Opinions from providers and Users, HIS.
- 20. Zuidgeest, M.H.P. (2005) Sustainable Urban Transport development: A dynamic Optimisation Approach, The Netherlands: University of Twente.